

AIM: Design and build a simple relational database system and demonstrate competence with the fundamentals tasks involved with modelling, designing and implementing a database.

CYBER COLLEGE DATABASE:

1. Table Name: STUDENT

COLOUMN NAME	DATATYPE(LENGTH)	CONSTRAINTS
Stud_No	VARCHAR (9)	PRIMARY KEY
Stud_lname	VARCHAR (30)	
Stud_fname	VARCHAR (20)	
Stud_address	VARCHAR (50)	
Stud_City	VARCHAR (30)	
State	VARCHAR (2)	
PostalCode	VARCHAR (9)	

2) Table Name: INSTRUCTOR

COLOUMN NAME	DATATYPE(LENGTH)	CONSTRAINTS
Instructor_id	VARCHAR (5)	PRIMARY KEY
Instructor_lname	VARCHAR (30)	
Instructor_fname	VARCHAR (20)	
Instructor_phone	VARCHAR (8)	

3) Table Name: COURSE

COLOUMN NAME	DATATYPE	CONSTRAINTS
Course_Code	VARCHAR (6)	PRIMARY KEY
Course_Title	VARCHAR (25)	
Course_Hours	NUMBER (2,0)	
Semester	VARCHAR (20)	

4) Table Name: SECTION

COLOUMN NAME	DATATYPE	CONSTRAINTS
Section_id	NUMBER	PRIMARY KEY
Time_Offered	VARCHAR (10)	
Days_Offered	VARCHAR (10)	
Section_Room	VARCHAR (8)	
Class_Size	NUMBER (3,0)	CHECK >=0
Number_Enrolled	NUMBER (3,0)	CHECK >=0
Instructor_id	VARCHAR (5)	FOREIGN KEY
Course_Code	VARCHAR (6)	FOREIGN KEY

5) Table Name: ENROLMENT

COLUMN NAME DATATYPE(LENGTH) CONSTRIANTS

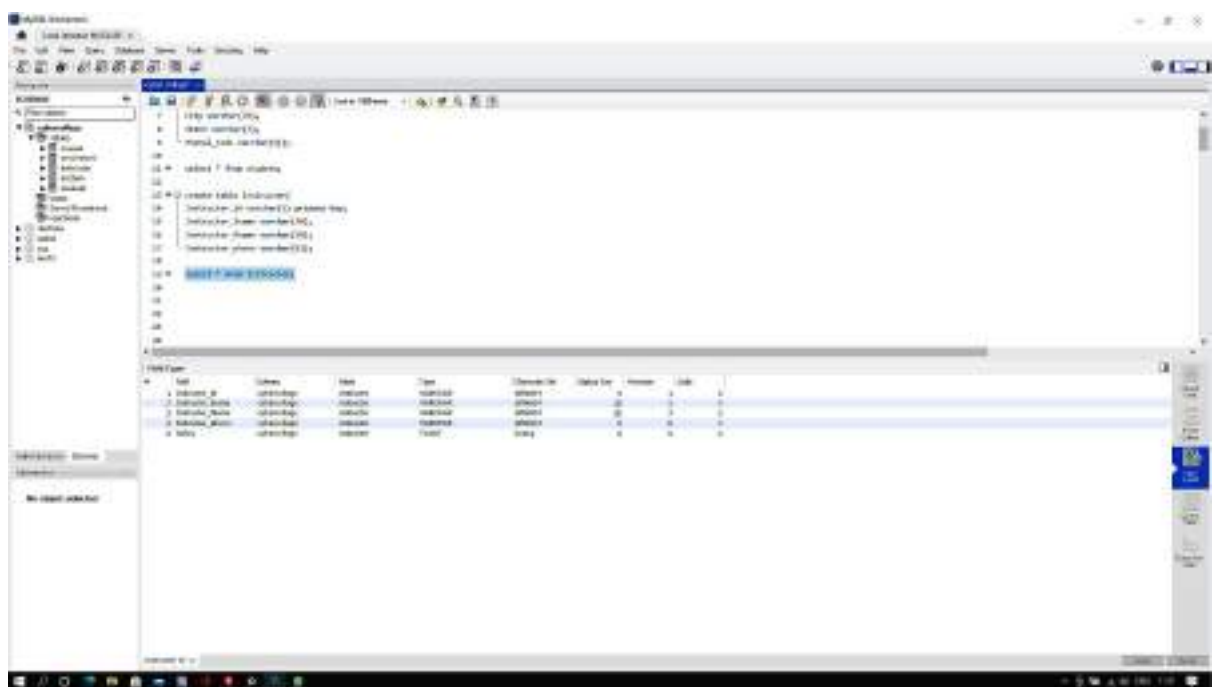
COLOUMN NAME	DATATYPE(LENGTH)	CONSTRAINTS
Stud_No	VARCHAR (9)	PRIMARY KEY, FOREIGN KEY
Section_id	VARCHAR (7)	PRIMARY KEY, FOREIGN KEY
Grade	VARCHAR (2)	

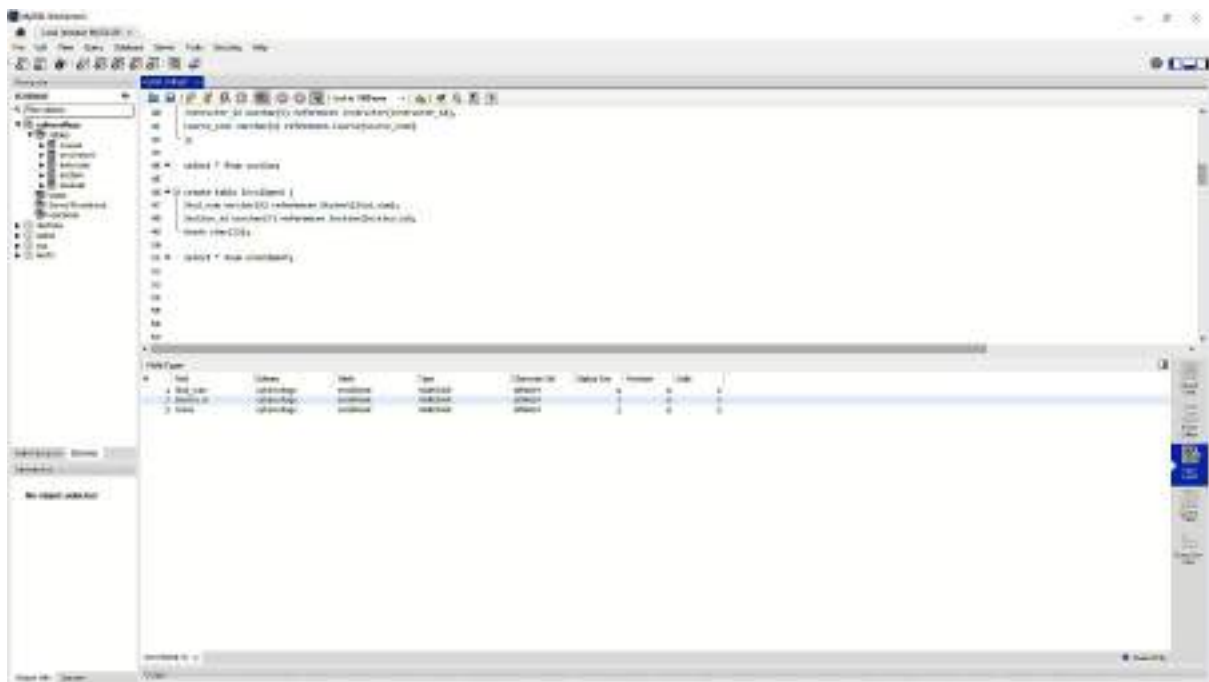
I. DDL Commands:

1. Create the database named CYBERCOLLEGE and the above tables in the

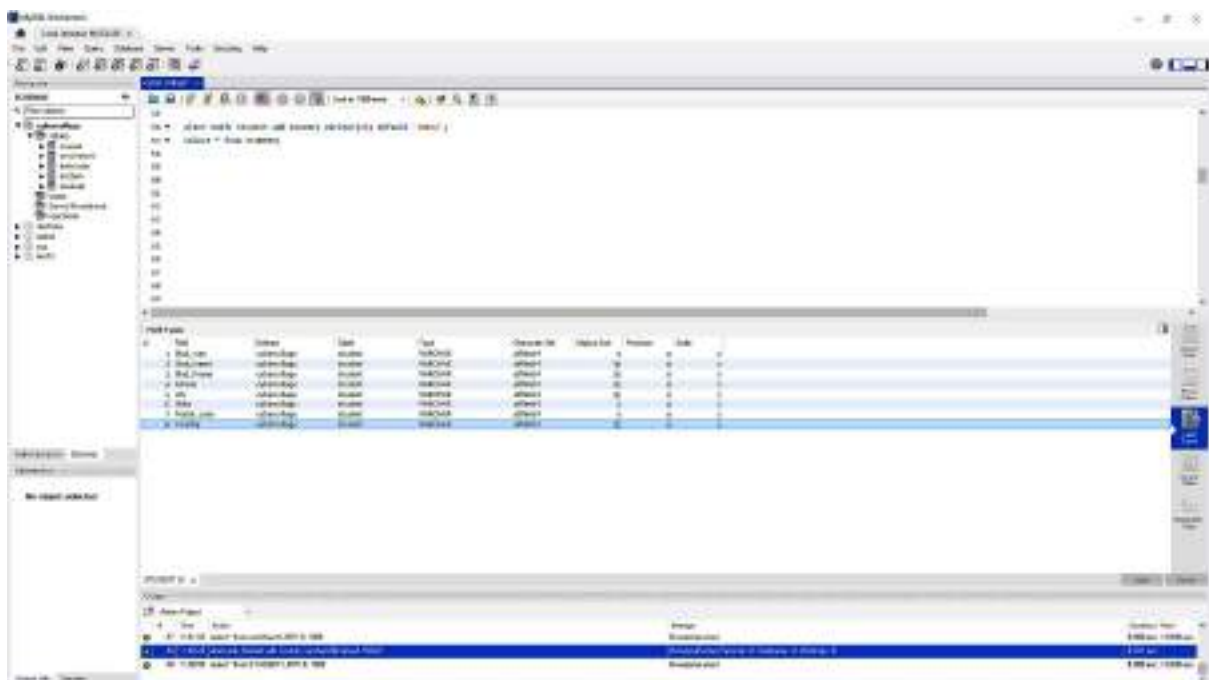
CYBERCOLLEGE database; include the Primary Key Constraint, Referential Integrity Constraints, and Check Constraints.



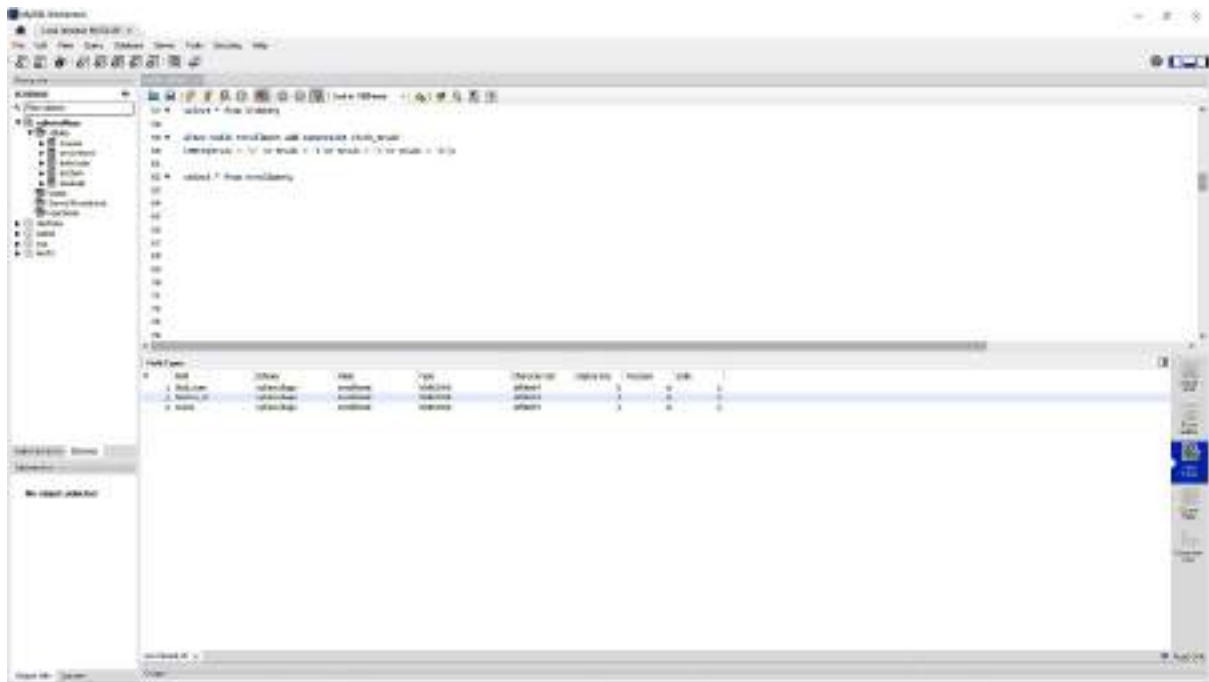




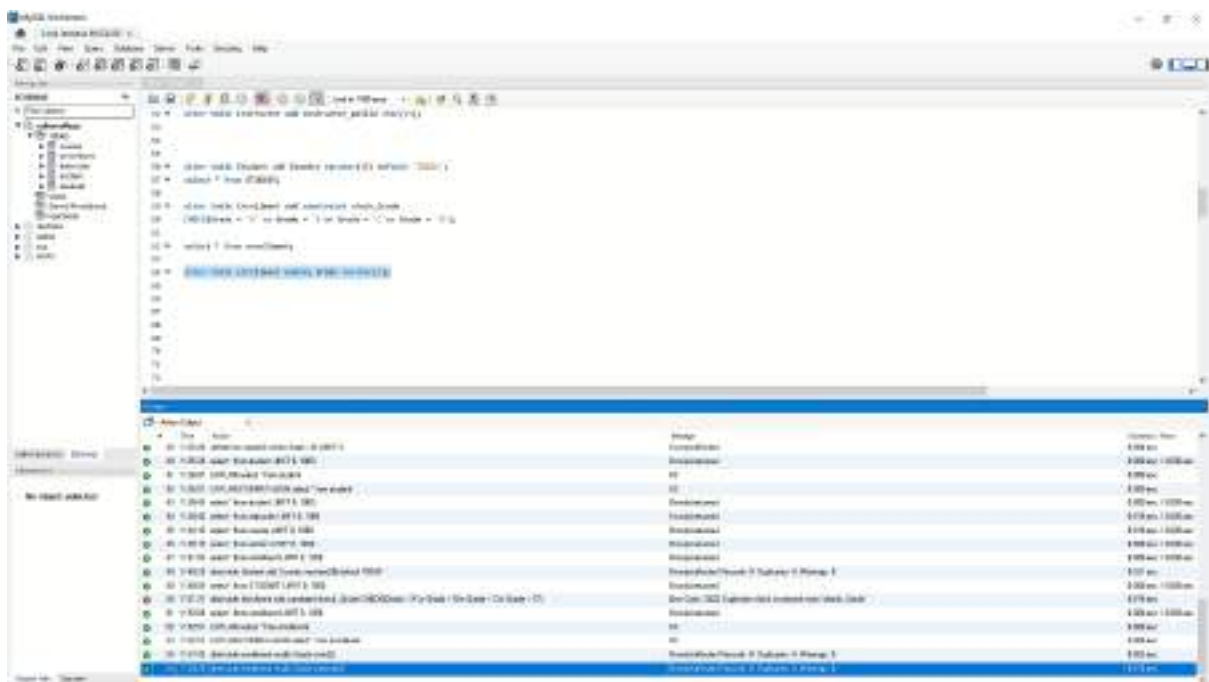
2. Add a field Country to the STUDENT table with the default value set to 'India'.



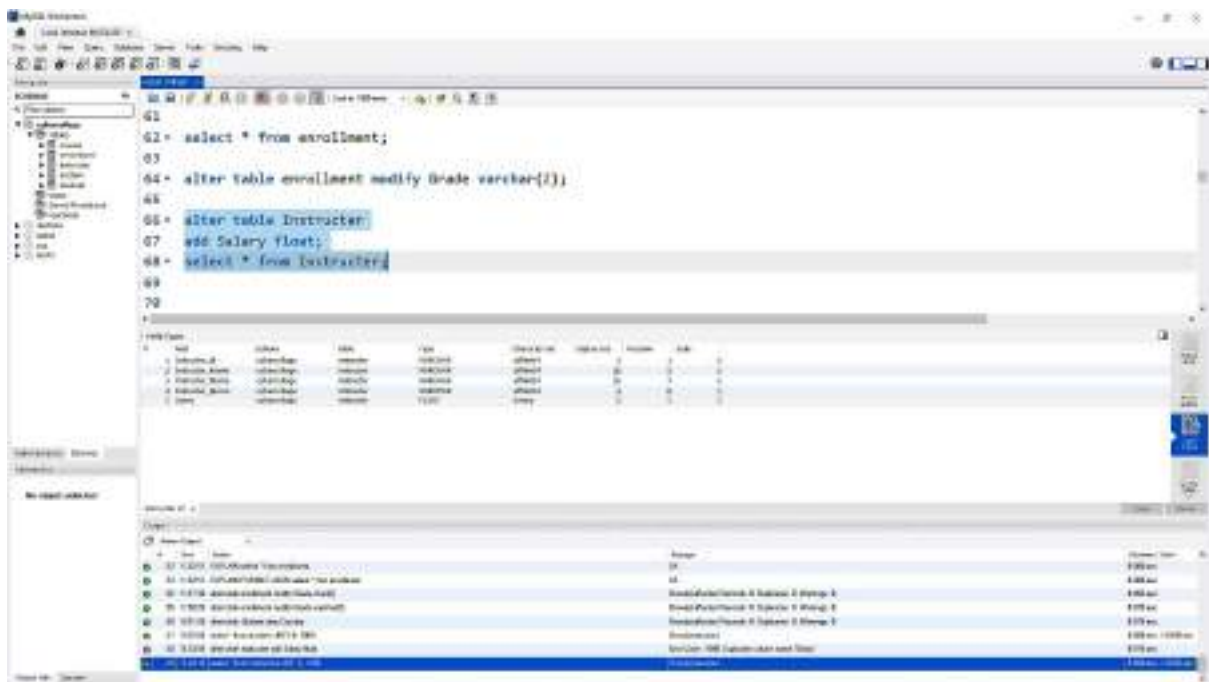
3. Add a constraint to the Grade field in the ENROLMENT table that accepts only the values 'A', 'B', 'C' and 'D'.



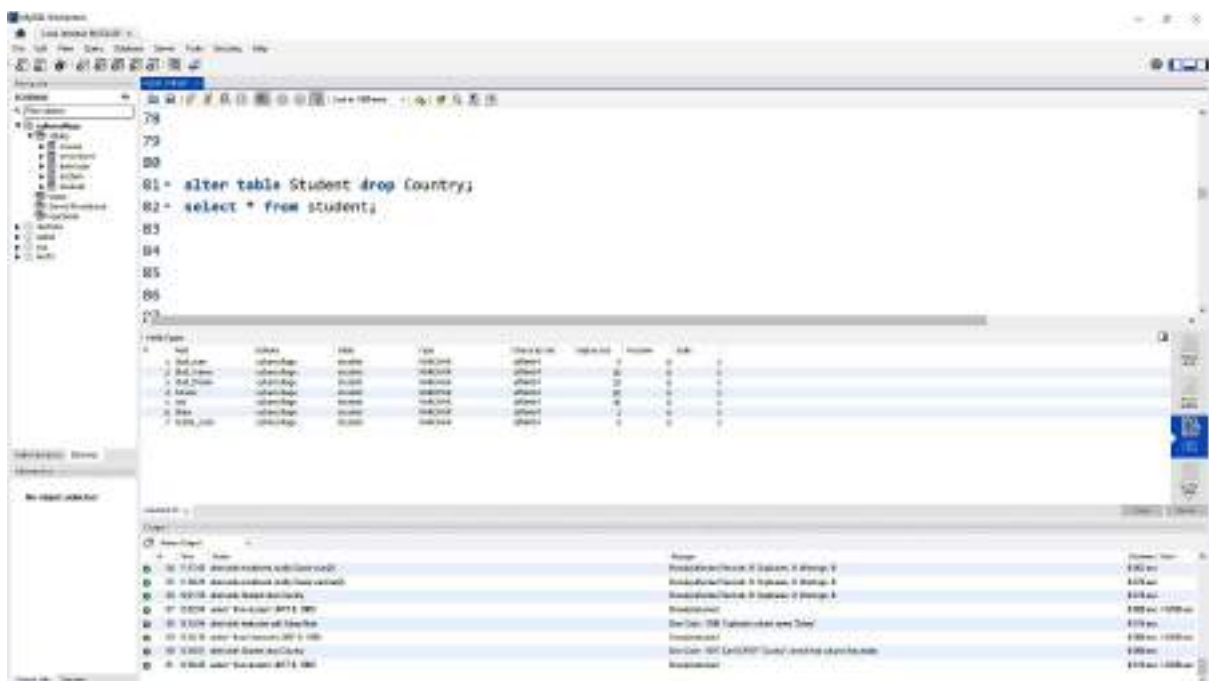
4. Modify the ENROLLMENT table by changing the width of the field Grade to 2.



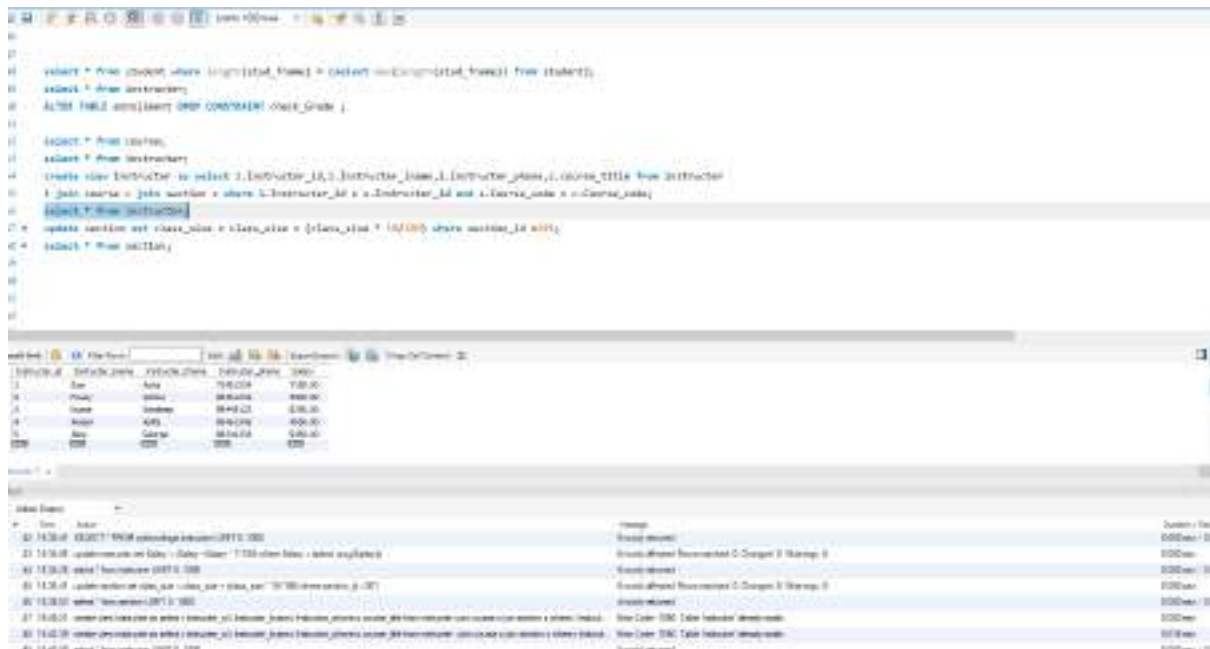
5. Add a new column, salary to the INSTRUCTOR table and display its modified schema.



6. Drop the column Country from the STUDENT table.

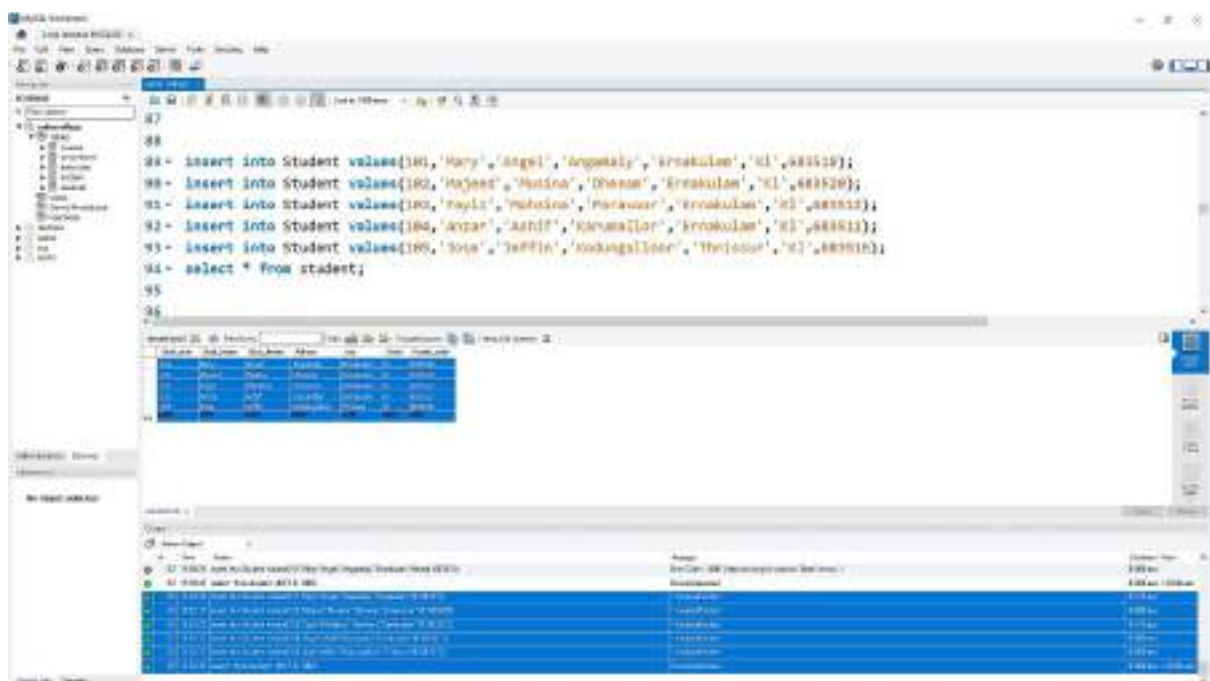


7. Create a view for instructors to display the courses taught by an instructor. Display the personal details but by hiding salary information.

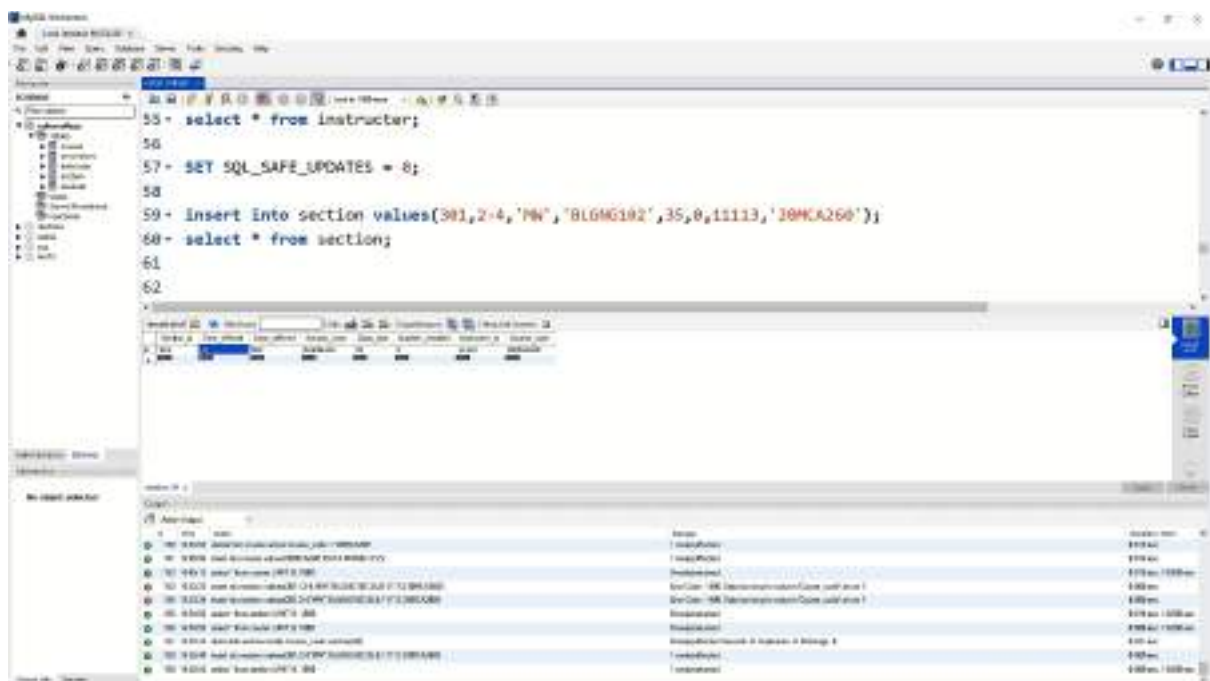


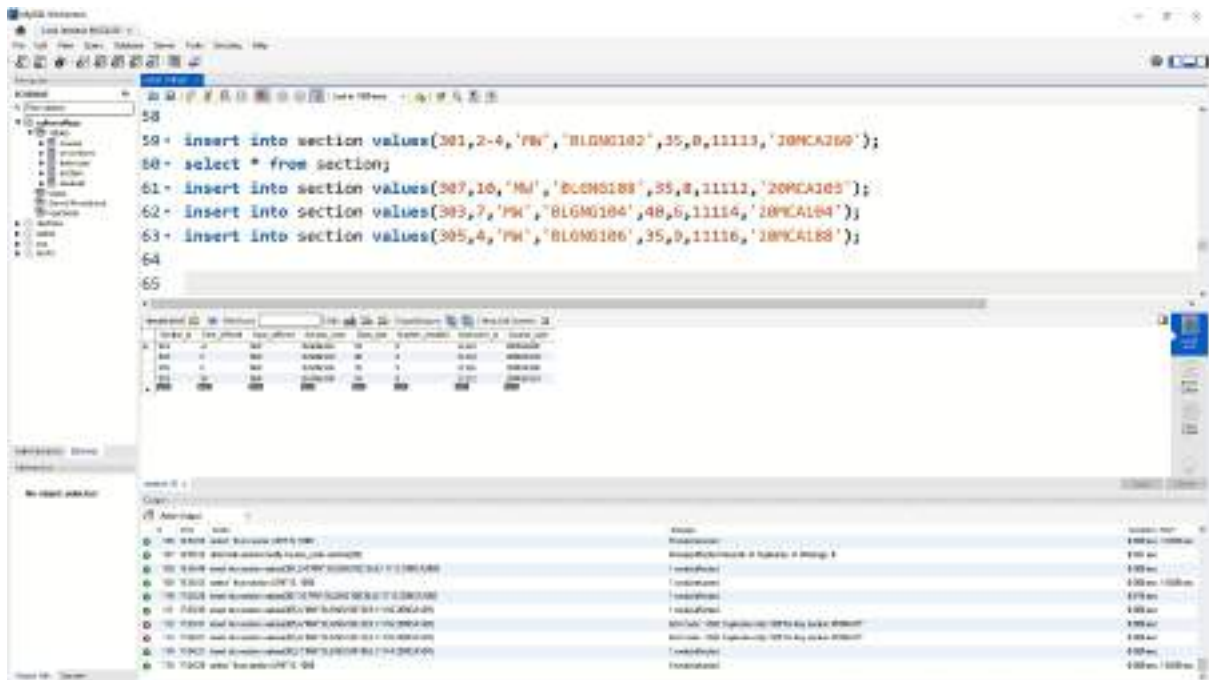
II. DML Commands:

8. Insert details of you and your 5 friends in STUDENT table and the details of 5 instructors with names (Asha, Ashna, Sandeep, Asifa, George) in INSTRUCTOR table.



10. Add a new section for this new course with section ID as 301. The section should meet in 2-4 on MW in BLGNG102. The class size should be 35, and number enrolled should be 0. The instructor should be 3, and the course is 20MCA260. Also add sections 302 and 303 for the courses AOS and OB and enrol 5 students each to these courses.

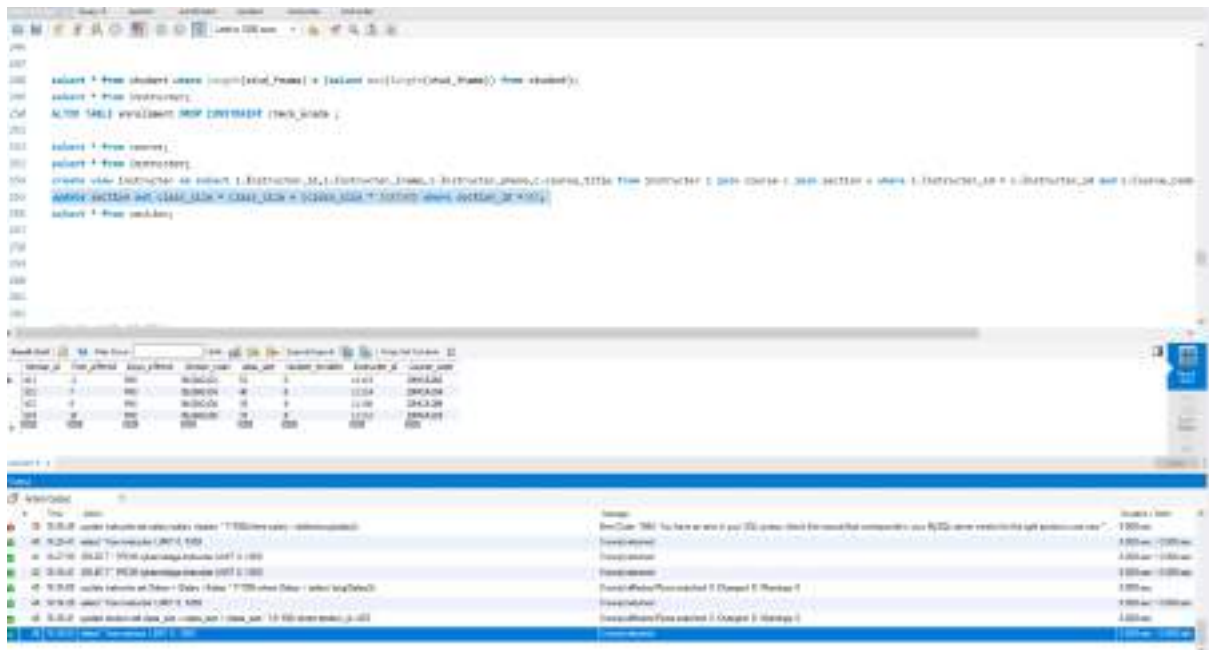




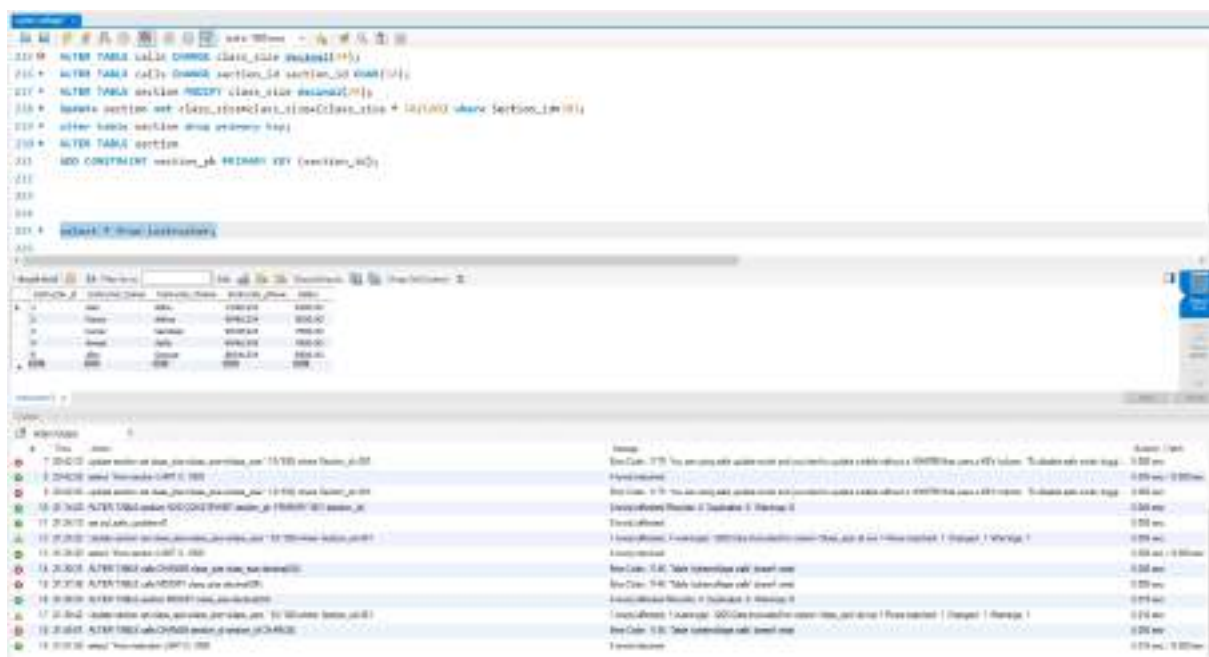
11. Register yourself along with your 3 friends for this new course by adding a row to the ENROLLMENT table. The grade should be null.

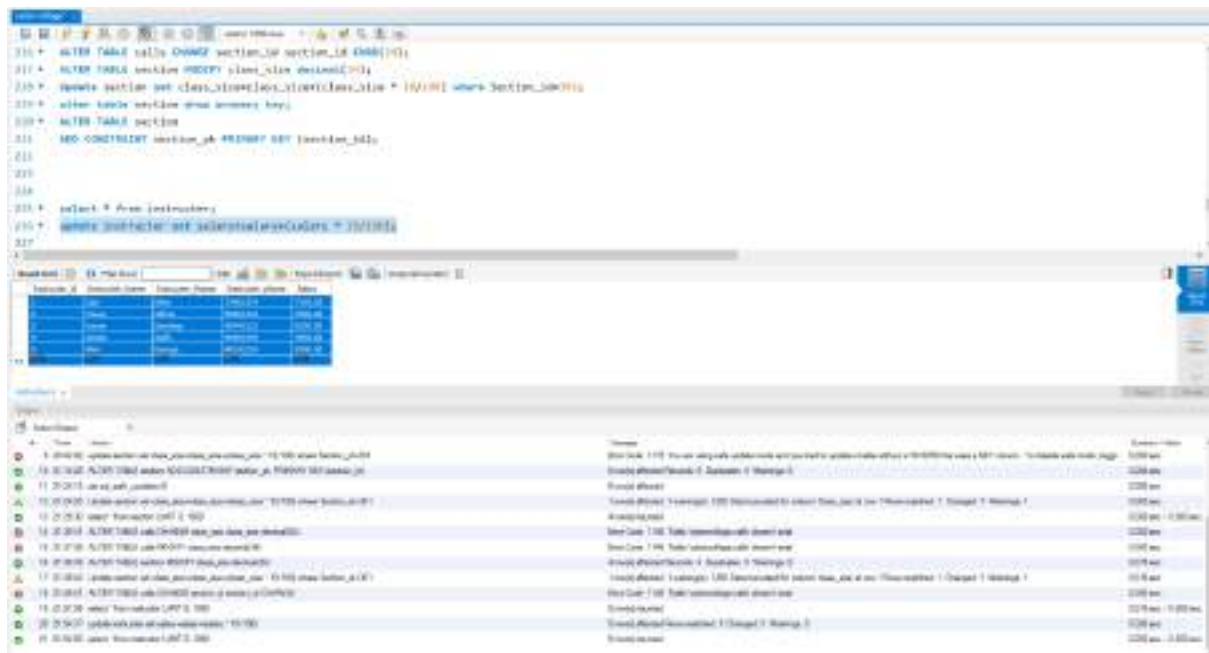


12. Update the 301 section, and increase the class sizes by 10%.

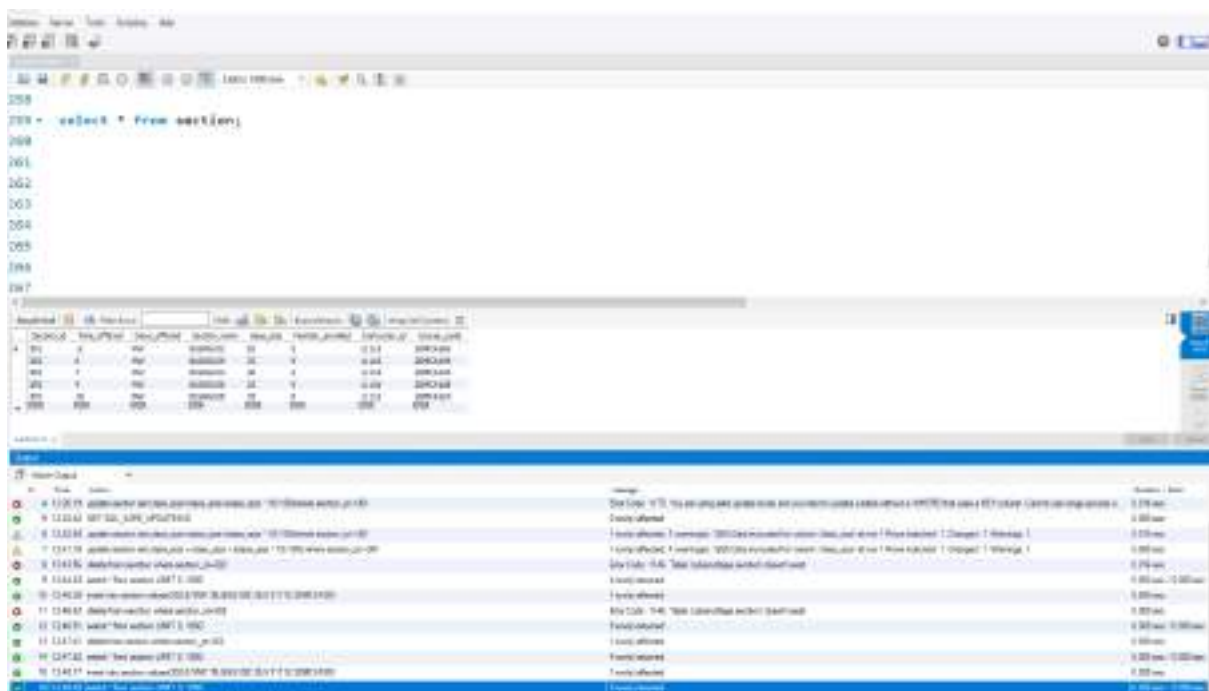


13. Give a 10% increment in salary for all instructors.





14. Delete Section 302 and verify for the rows in ENROLMENT table for that section.



```

152+ select * from instructor;
153+ create view instructor as select i.instructor_id,i.instructor_name,i.instructor_phone,i.course_title from instructor i join section s on
154+ update section set class_size = class_size + (class_size * 10/100) where section_id = 1001;
155+ SET SQL_SAFE_UPDATES=0;
156+ delete from section where section_id=1001;
157
158
159+ select * from section;
160
161

```

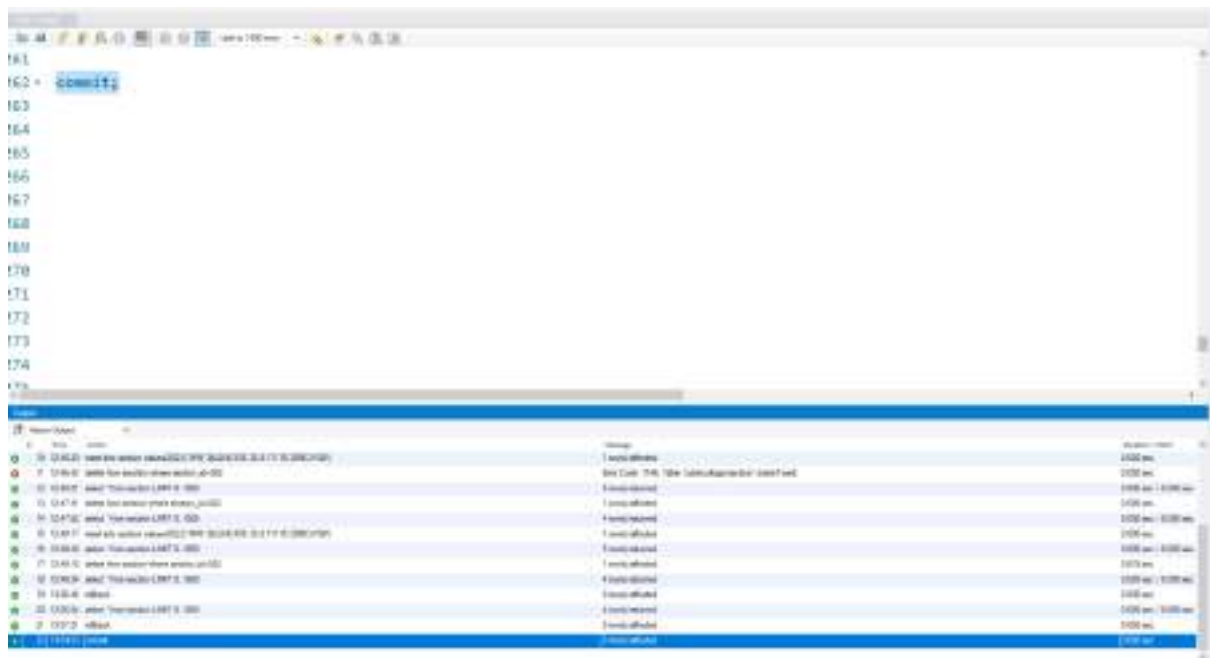
15. Undo the previous delete operation

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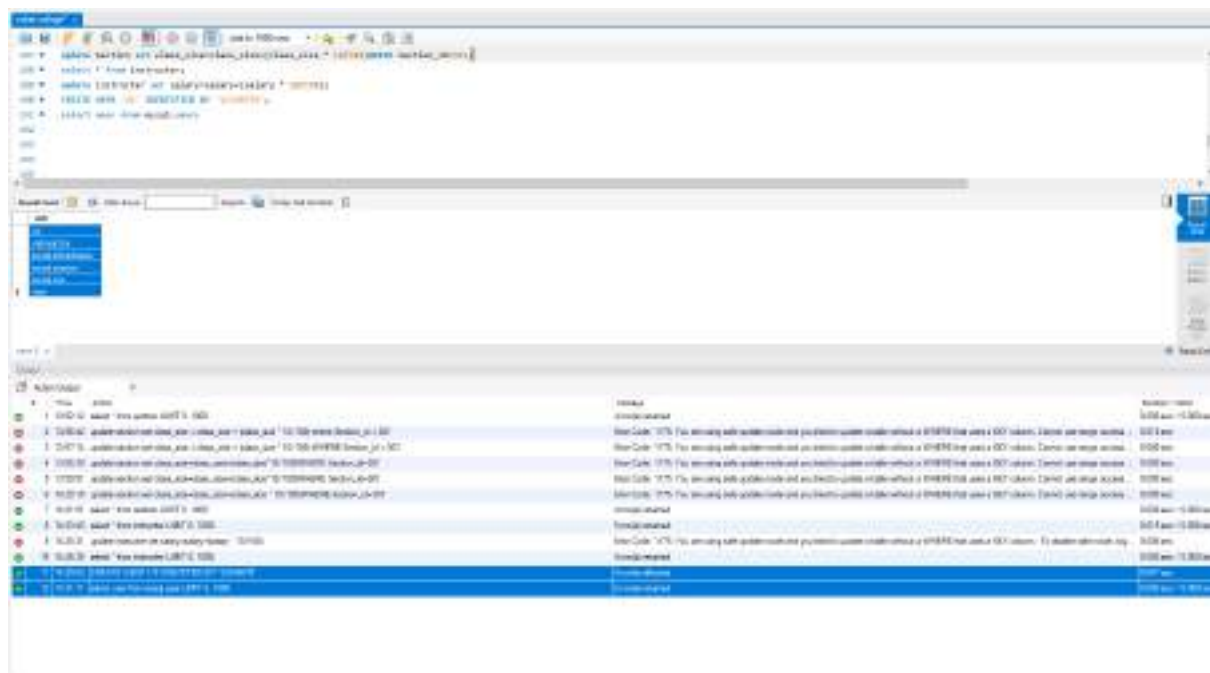
158
159+ select * from section;
160+ rollback;
161
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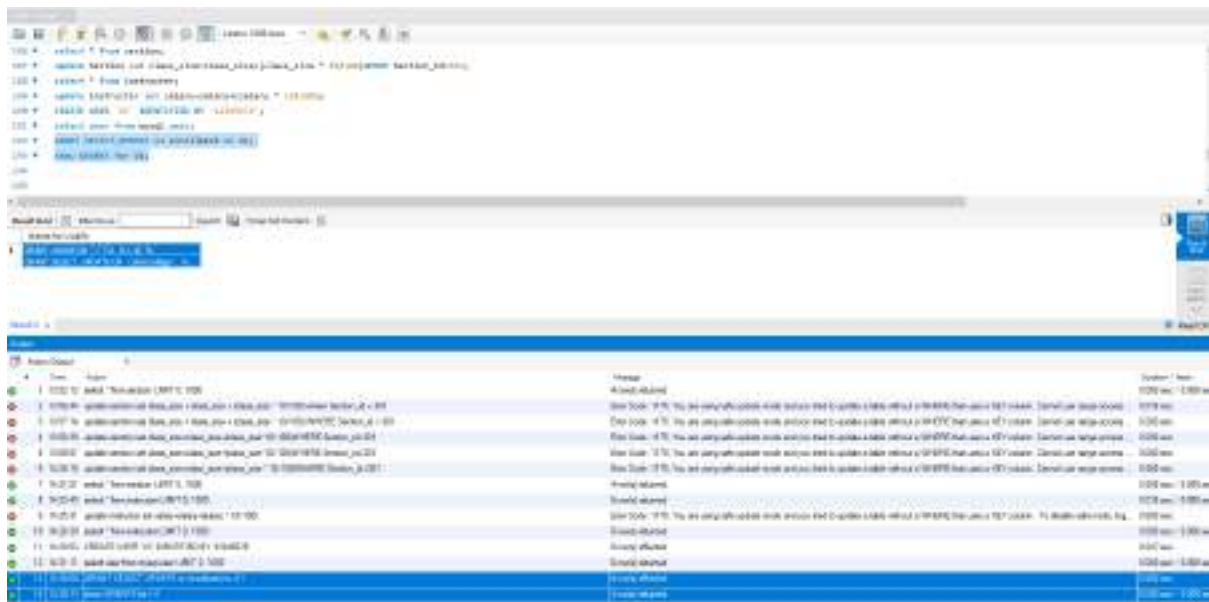
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16. Save all the transactions to the database.

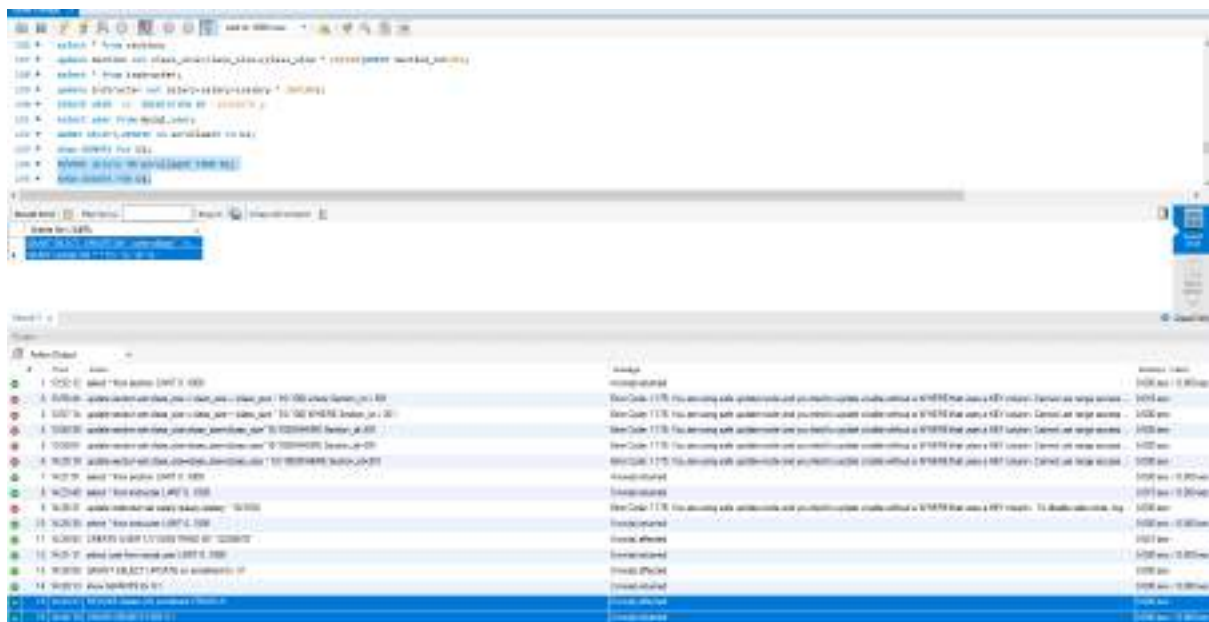


17. Grant the privilege to read and delete from the ENROLMENT table to the User U1.

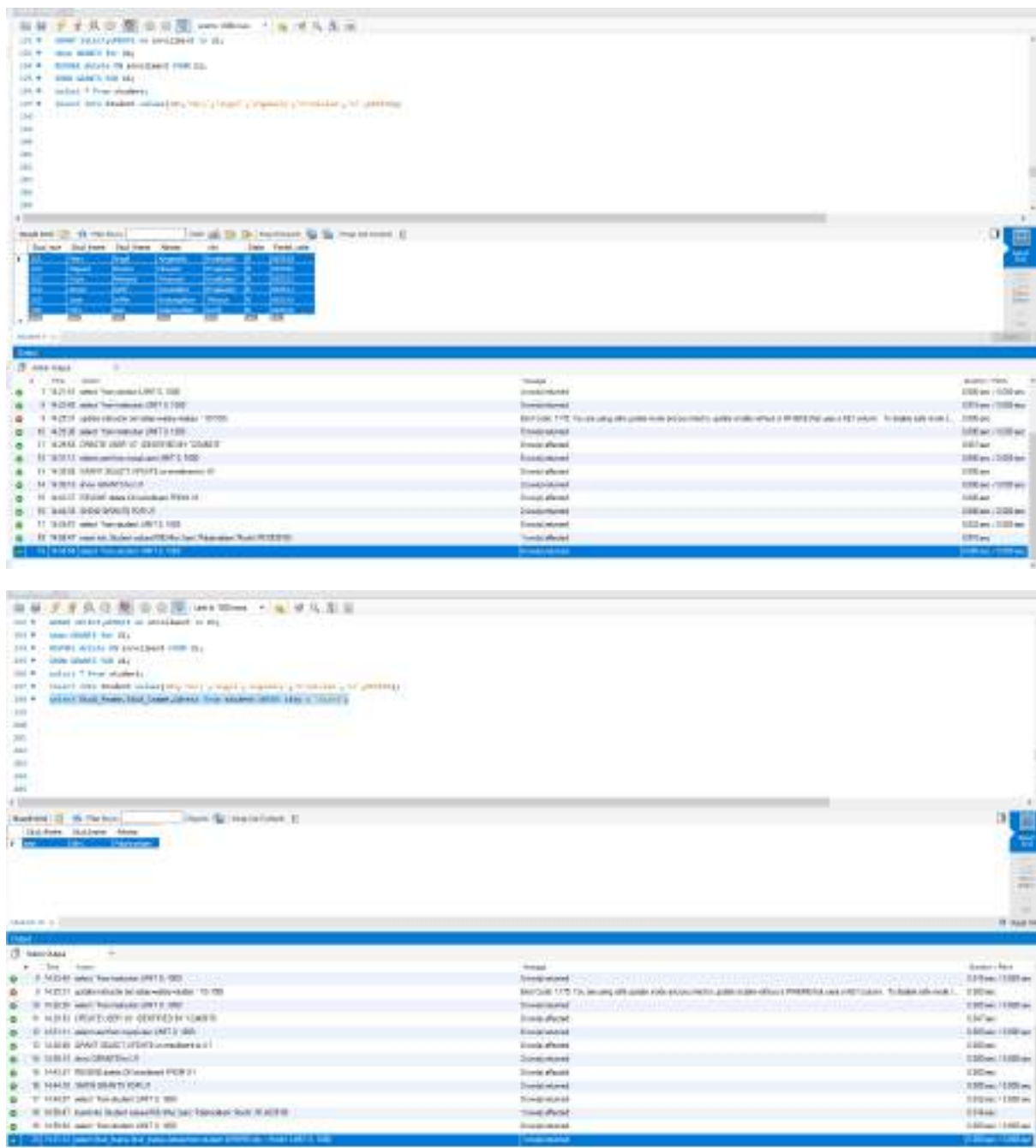




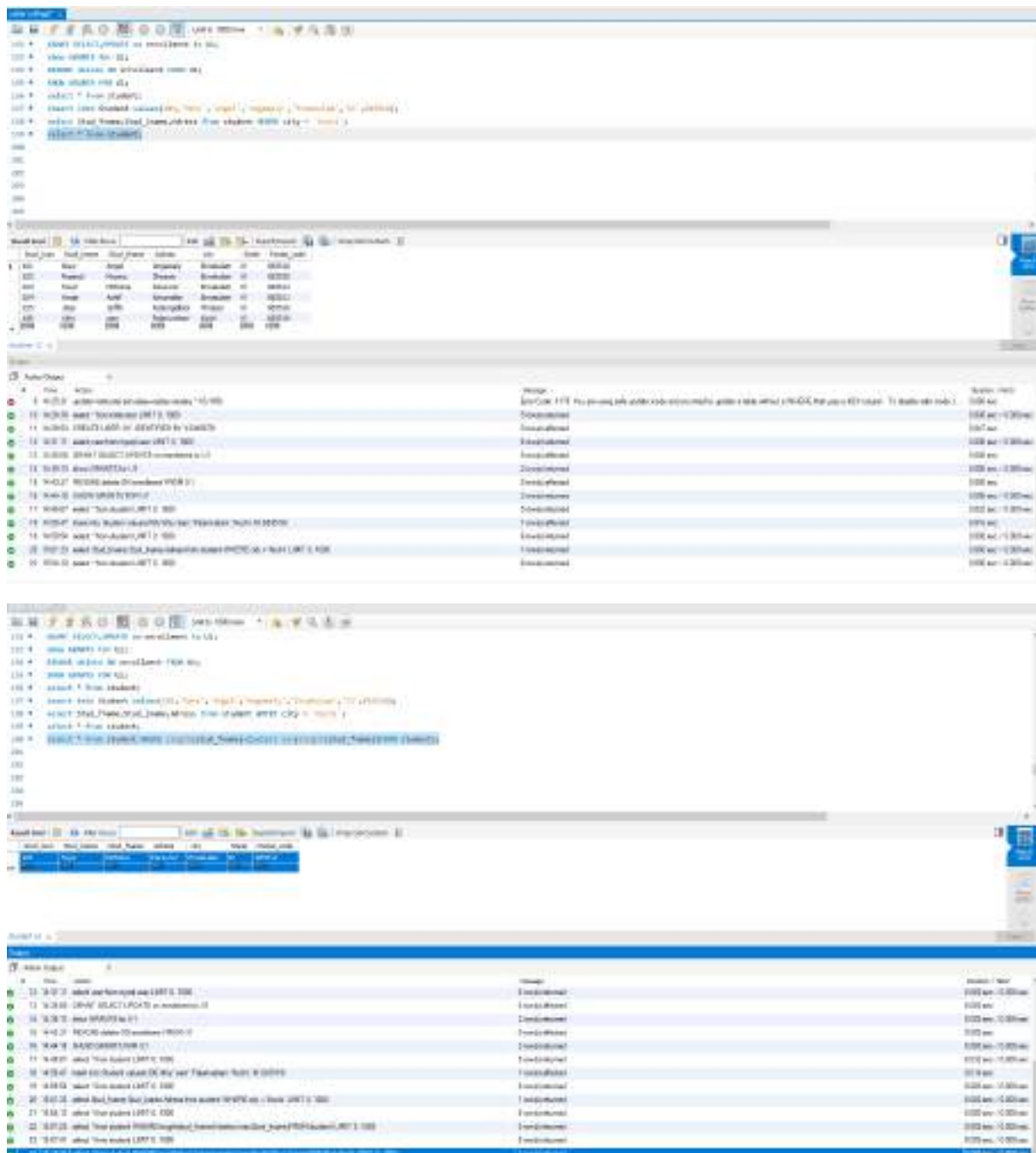
18. Revoke the delete privilege from U1



19. Display the full name and contact details of students living in Kochi.



20. List the student details who has longest first name



21. Display the name and phone number of the instructors who is handling the courses AOS and ADBMS.

```

160+ select * from section;
161+ rollback;
162
163+ commit;
164+ select * from course;
165+ select instructor_name, instructor_phone from instructor i join course c join section s where i.instructor_id = s.instructor_id
166+ and s.course_code = c.course_code and i.course_title = c.course_title;
167+ select * from instructor;
168

```

Course Code	Course Title	Credits	Credits Hours
101	Introduction to Computer Science	3	3
102	Discrete Structures	3	3
103	Algorithms and Complexity	3	3
104	Operating Systems	3	3
105	Database Systems	3	3
106	Computer Networks	3	3
107	Mobile Computing	3	3
108	Artificial Intelligence	3	3
109	Security in Computing	3	3
110	Human-Computer Interaction	3	3
111	Biomedical Informatics	3	3
112	Health Informatics	3	3
113	Public Health Informatics	3	3
114	Healthcare Data Analytics	3	3
115	Healthcare Quality Improvement	3	3
116	Healthcare Policy and Law	3	3
117	Healthcare Economics	3	3
118	Healthcare Ethics	3	3
119	Healthcare Communication	3	3
120	Healthcare Leadership	3	3

22. List the codes, titles, and credit hours for courses worth 4 hours. Order the results in descending order of course code.

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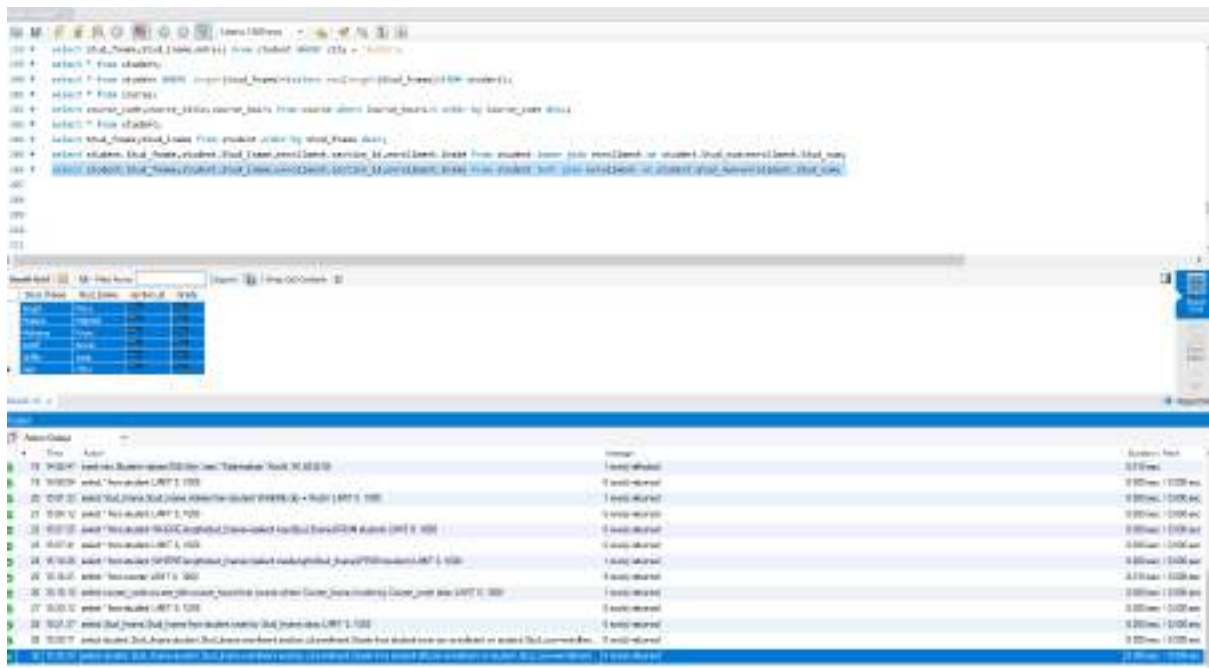
169+ select * from section;
170+ rollback;
171
172+ commit;
173+ select * from course;
174+ select instructor_name, instructor_phone from instructor i join course c join section s where i.instructor_id = s.instructor_id
175+ and s.course_code = c.course_code and i.course_title = c.course_title;
176+ select * from instructor;
177

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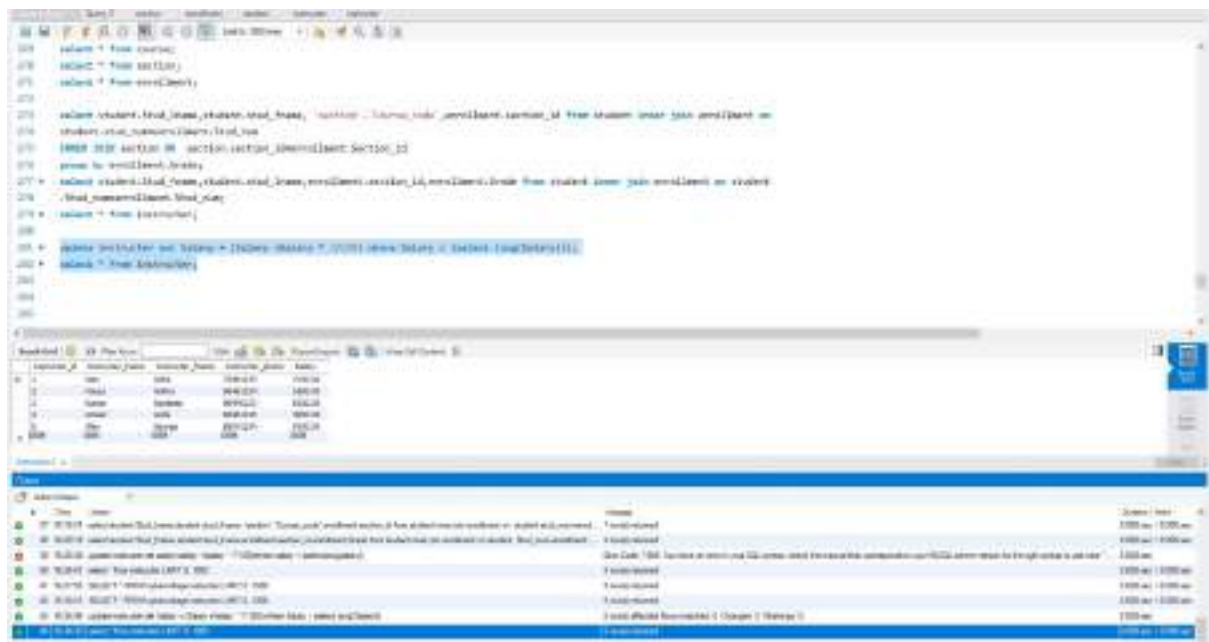
Student ID	Student Name	Student Phone
101	John Doe	1234567890
102	Jane Smith	0987654321
103	Michael Johnson	1122334455
104	Sarah Williams	6677889900
105	David Brown	5544332211
106	Emily Davis	4433221100
107	Christopher Miller	3322110099
108	Amanda Wilson	2211009988
109	Matthew Moore	1100998877
110	Olivia Taylor	0099887766
111	Benjamin Clark	9988776655
112	Mia Harris	8877665544
113	Ethan King	7766554433
114	Avery Lee	6655443322
115	Lucas White	5544332211
116	Chloe Green	4433221100
117	Isaac Adams	3322110099
118	Grace Baker	2211009988
119	Henry Nelson	1100998877
120	Abigail Carter	0099887766

23. Display the names of the students in the descending order along with their phone number.

id and Grade. Include all the students regardless of whether they have a matching section.



27. Give a 7% salary raise to instructors whose salary is less than the average.



28. List full name and salary of instructors whose last name ends with 'a' and earns highest salary.

100	SELECT STAFF_NAME,STAFF_ID,STAFF_JOB FROM STUDENT WHERE STAFF_ID = 10000;		
101	SELECT * FROM STUDENT;		
102	SELECT * FROM STUDENT WHERE (STUDENT_NAME= 'JAYANT') AND (STUDENT_NAME=10000) STUDENT;		
103	SELECT * FROM STUDENT;		
104	SELECT STUDENT_NAME,STUDENT_ID,STUDENT_JOB FROM STUDENT WHERE STUDENT_ID=10000 STUDENT;		
105	SELECT * FROM STUDENT;		
106	SELECT STUDENT_NAME,STUDENT_ID,STUDENT_JOB FROM STUDENT WHERE STUDENT_ID=10000 STUDENT;		
107	SELECT STUDENT_NAME,STUDENT_ID,STUDENT_JOB FROM STUDENT WHERE STUDENT_ID=10000 STUDENT;		
108	SELECT * FROM STUDENT;		
109	SELECT STUDENT_NAME,STUDENT_ID,STUDENT_JOB FROM STUDENT WHERE STUDENT_ID=10000 STUDENT;		
110	SELECT * FROM STUDENT;		
111	SELECT * FROM STUDENT;		
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30. List the students details who lived in Kochi, Kerala or in Bangalore, Karnataka or both.

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